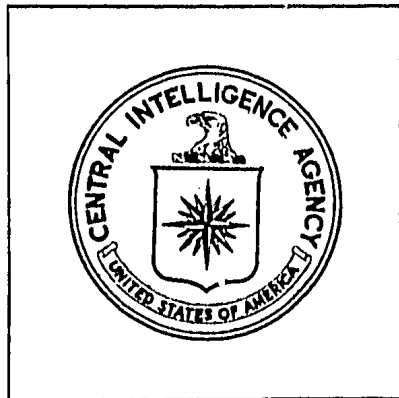


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Trends in the Soviet Antarctic Program

BGI RP 74-10
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Central Intelligence Agency
Directorate of Intelligence
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TRENDS IN THE SOVIET ANTARCTIC PROGRAM

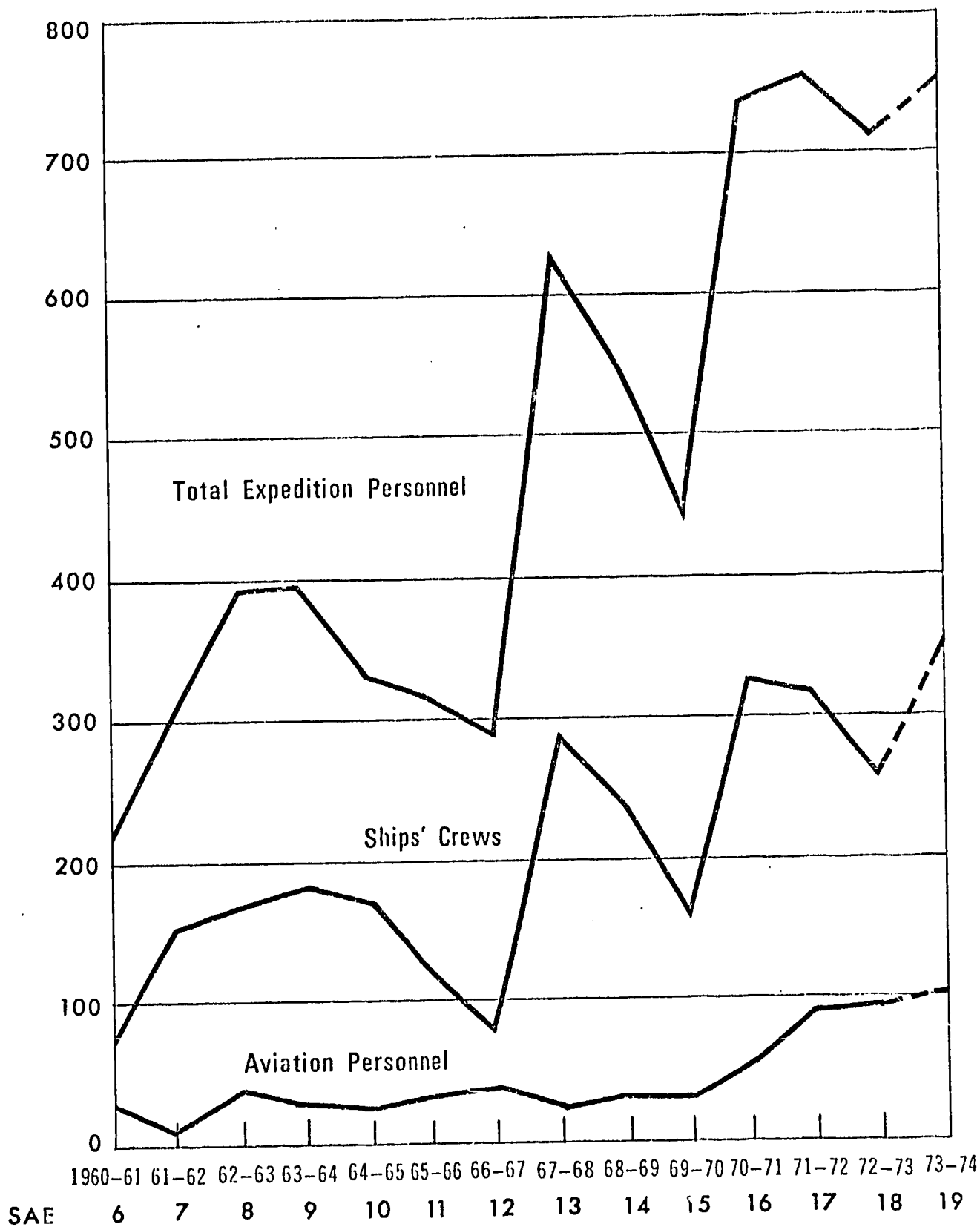
1. The USSR's Antarctic program appears to have stabilized and matured following a period of uncertainty and then rapid expansion during the 1960's (Figures 1 and 2, following page 1). Most of this past expansion as well as the present mix of scientific programs can be traced to decisions reached during a major policy study in 1966, and refined in subsequent annual reviews. These stated objectives emphasize research that will yield practical benefits, particularly from marine and mineral resources, and from meteorological and geophysical forecasting.

2. The Nineteenth Soviet Antarctic Expedition (SAE), 1973-74, is remarkably similar in size and scope to the previous three expeditions. For the fourth consecutive year the USSR will probably man six year-round stations. No mention has been made this year of plans to open a new station, Russkaya, on the coast of Marie Byrd Land (see map, page 2). Attempts during the last two expeditions to establish Russkaya failed; last year's try led to a delay in ship scheduling and eventual entrapment of the resupply ship Ob' for three months in the ice pack. Indications several years ago that Mirnyy station might be abandoned have been negated by a current rebuilding program.

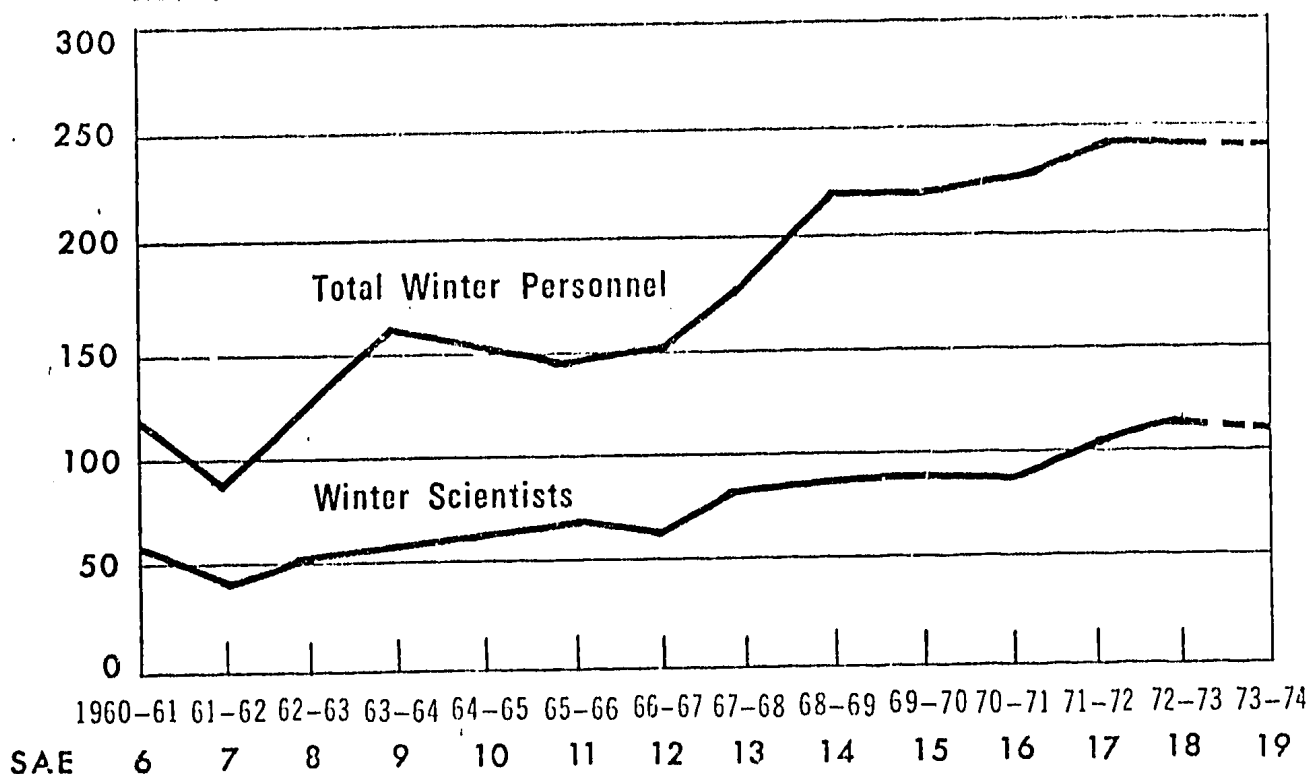
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Figure 1

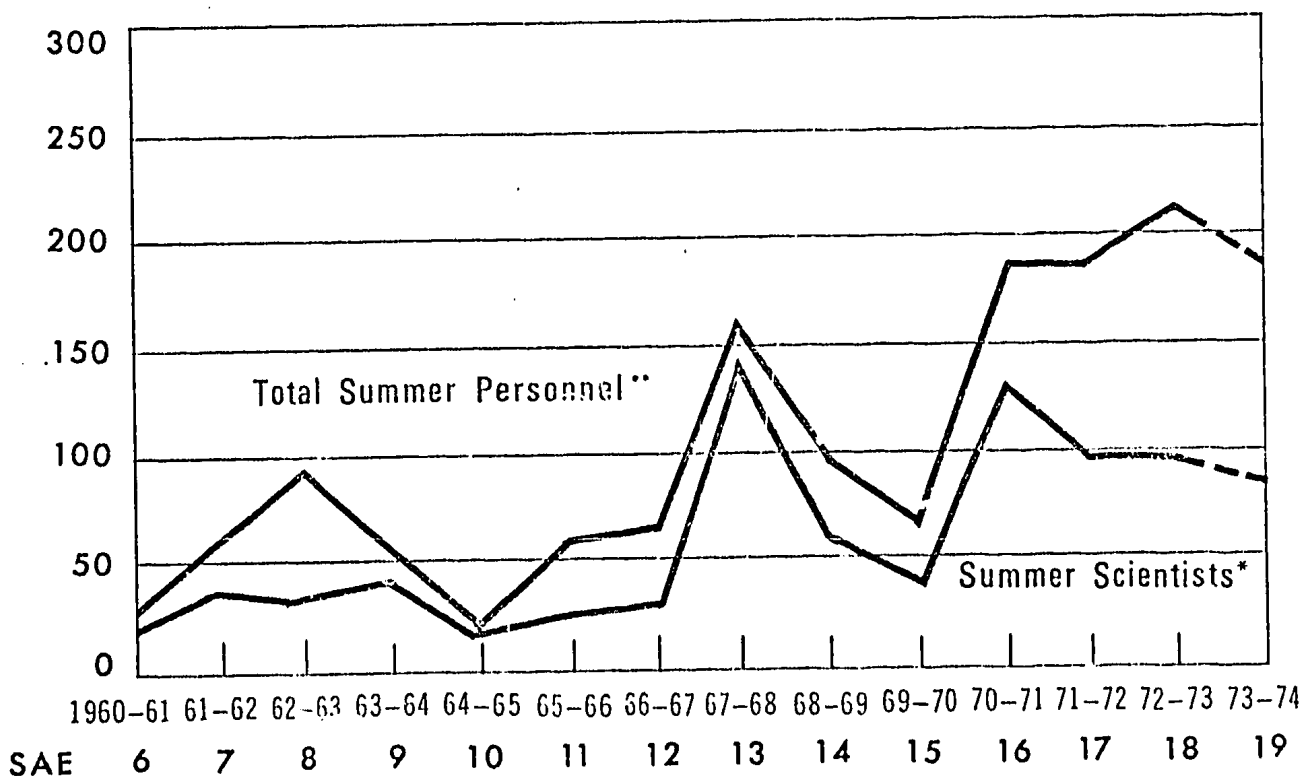
Number of Personnel on Soviet Antarctic Expeditions



Number of Winter Personnel on Soviet Antarctic Expeditions

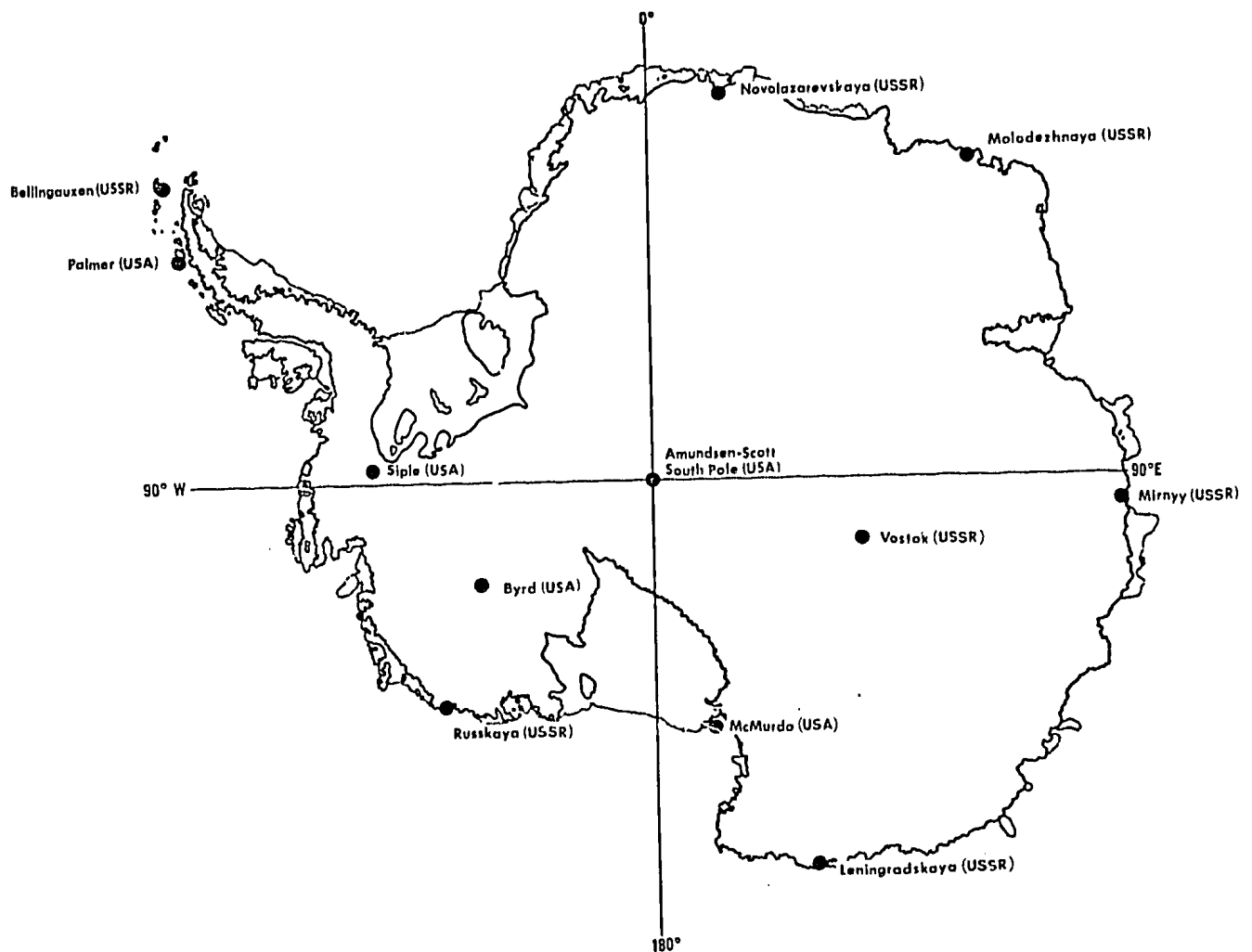


Number of Summer Personnel on Soviet Antarctic Expeditions



*On last five SAE's includes 12 to 25 man scientific detachment on Vize and Zubov, officially listed by USSR as ship's crew.

3. According to the Soviet press, about 750 persons are on the Nineteenth SAE. Some 350 of these are crew members of the five ships supporting the expedition. The 400 regular expedition members are allocated roughly as follows: 240 persons at permanent stations, more than 100 on field parties, and about 50 on shipboard research and support activities. The 240 station personnel are augmented during the present summer season by an additional 100 to 200 members of the overlapping Eighteenth SAE.



U.S. and U.S.S.R. antarctic station locations.

4. One of the best indicators of trends in the Soviet Antarctic effort is the total number of wintering-over scientific workers. During 1973, the scientific contingent at six Soviet stations numbered 112, almost triple the 41 who stayed in 1962. Of this total, Molodezhnaya had about 40, Mirnyy and Vostok had 20 each, and Bellingshausen, Leningradskaya, and Novolazarevskaya were about equal with 10 each. All other countries active in Antarctica, including the US, support fewer than 50 scientific workers on the continent during the winter season.

5. Scientific activities at the six Soviet stations encompass the entire range of atmospheric and earth sciences common to the Antarctic programs of other countries. The largest are meteorology, radiowave propagation, satellite geodesy, glaciology, medicine, and geomagnetic research. Significant recent developments in these fields include: a meteorological rocket launching program at Molodezhnaya; an ice drilling program at Vostok that has reached a depth of 1000 meters and is designed to reach the bottom of the 3,500-meter-thick ice; a biomedical program that includes a new medical research center at Molodezhnaya; a new computing center at Molodezhnaya for processing meteorological and other data.

6. Activities during the austral summer season vary considerably from year to year and are composed of distinct marine and continental components. The marine portion fluctuates with the number of research vessels available to the expedition: in recent years two or three ships have been available to conduct research between expedition logistic duties. (Soviet research vessels without logistic duties related to Antarctic shore stations are not considered to be part of an SAE even when conducting research in Antarctic waters.)

7. Seasonal field research conducted on land during the last three expeditions has considerably exceeded that of any previous expedition. Nearly all of it has been based at a temporary camp on the Amery Ice Shelf in East Antarctica. In each of the three seasons more than 100 scientists and support personnel using aircraft and helicopters have operated from the Amery camp. This year

they plan to complete mapping of the entire mountainous area extending 800 kilometers inland from the Amery camp using data compiled from geological, gravity, seismic, aerial photographic, radio ice sounding, and magnetic surveys. Soviet researchers have stated that these data will be used to evaluate the area's mineral resources. They have given no indication of the nature or scope of future field programs. An ambitious project, announced in 1971, to install 34 automatic geomagnetic stations throughout East Antarctica has not been pursued according to the original schedule; it may now be accelerated using resources freed by completion of the field project around the Amery Ice Shelf.

AIR AND SEA LOGISTICS

8. The five ships being used on the current expedition provide the largest combined cargo capacity of any Soviet Antarctic Expedition. Two, the Vasiliy Fedoseyev and the Olenek, are ice-strengthened cargo vessels of 8,108 gross tons, identical to the Navarin and similar to the Ob', both used on previous expeditions. The Nina Sagaydak is a somewhat smaller refrigerated cargo ship that requires an escort in ice. The Bashkiriya is a 5,211-gross-ton passenger vessel of the same class as the Nadezhda Krupskaya, used by the 18th SAE. Finally, the Professor Vize is an ice-strengthened research, passenger, and cargo vessel that has been used on four previous expeditions.

9. The USSR employed five ships in its Antarctic operations once before, on the Sixteenth SAE. In that instance, however, one was a fuel tanker which is used in alternate years to resupply the large tank farms at Molodezhnaya and Mirnyy. The first 12 SAE's (1955-1967) used an average of two ships -- the multipurpose vessel Ob', and usually a passenger vessel. The last six SAE's prior to this year have averaged four ships -- the Ob', the Professor Vize or its twin the Professor Zubov, a tanker in alternate years, a freighter in four of the years, and in one season two Navy hydrographic vessels.

10. Although they are not considered part of the Soviet Antarctic expedition, other research vessels from USSR Academy of Sciences and fisheries fleets also operate in the Antarctic each year. During the current season, for example, a fisheries research ship will tow a manned submersible in Antarctic waters.

11. The USSR has not used aircraft to ferry personnel and supplies to Antarctic since 1964, at least partly because of a lack of adequate landing facilities at the continental stations. Aircraft are, however, used in most years to shuttle some of the annual relief personnel as far as Australia, where they are picked up by one of the expedition ships.

12. The USSR has often acknowledged a need for larger aircraft for intercontinental and intracontinental support. A Soviet Antarctic specialist has noted that this requirement will soon become critical because production of the IL-14 has been discontinued. This plane is similar in size to the DC-3 and provides the only Soviet capability to fly to the interior station Vostok. The USSR has recently shown interest in purchasing the larger C-130 aircraft from the US to meet these needs.

13. On the continent itself, light aircraft and helicopters are used to ferry personnel and cargo from ship to shore and between stations and also in support of field parties. This capability has increased slightly this year over that of the past few years, continuing a trend that has been noticeable for some time. On hand for the 19th SAE are four IL-14's, two AN-2's (small biplanes), and four MI-8 helicopters, each with a payload capacity of 7,000 pounds.